

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 300560WO/DJW	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB 2003/003182	International filing date (day/month/year) 20.06.2003	Priority date (day/month/year) 21.06.2002
International Patent Classification (IPC) or national classification and IPC H04Q 7/38		
Applicant Nokia Corporation et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand 21.01.2004	Date of completion of this report 10.09.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Stefan Hansson /OGU Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/003182

Box No. 1 Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-17 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 18-20 _____ received by this Authority on 05-04-2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1-2 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/003182

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-17</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-17</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-17</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention

The claimed invention relates to providing location information of a user equipment.

The following documents were cited in the International Search Report:

D1: US 6169899 A

D2: WO 0152569 A

D1 relates to a system and method for providing historical data for location services. D1 discloses a telecommunications system and method for providing location information that consist of either real-time data or historical data when the subscriber requested to be positioned is either absent or not reachable, to a requesting location application. The historical data is preferably stored per subscriber in a database within a serving mobile switching centre/visitor location register (MSC/VLR) following a successful positioning of that subscriber.

D1 uses location information in order to position the subscriber which implies that a previous positioning must have been carried out.

The claimed invention uses connection information to determine the location or position of the subscriber. Connection information includes service area identity or a global cell identity which are available within a communication system even if no location request has previously been made.

D2 is considered to merely disclose the state of the art and is not commented on further.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of BOX V.

Consequently, the claimed invention as in claims 1-17 is novel, considered to lack an inventive step and has industrial applicability.

CLAIMS

1. A method in a communication system for providing a location service with geographical location information associated with a user equipment capable of communicating with the communication system, the method comprising the steps of: storing connection information identifying a connection of the user equipment in the communication system; and determining whether the user equipment is currently connected in the network, wherein responsive to the user equipment not currently being connected in the network, the location of the user equipment is determined in dependence on the last stored connection information for the user equipment and wherein the connection information includes a service area identity or a cell global identity, the method further including the step of translating the connection information into geographical coordinates.
2. A method according to claim 1 wherein the location service is provided by a gateway mobile location center.
3. A method according to claim 2 wherein the gateway mobile location center is adapted to communicate with a gateway mobile location center of a further communication system.
4. A method according to any preceding claim wherein the connection information is stored in a control element of the communication system.
5. A method according to claim 4 wherein the connection information is stored in a radio network controller of the communication system.
6. A method according to claim 4 wherein the connection information is stored in a mobile switching center of the communication system.

AMENDED SHEET

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7. A method according to claim 4 wherein the connection information is stored in a serving GPRS support node of the communication system.
8. A method according to claim 4 wherein the connection information is stored in a serving mobile location center of the communication system.
9. A method according to any preceding claim, wherein the step of translating the connection information into geographical coordinates is carried out by a location service.
10. A method according to any preceding claim wherein the communication system comprises a cellular telecommunications network.
11. A method according to any preceding claim wherein the user equipment comprises a mobile station.
12. A communication system comprising a location server for providing geographical location information associated with a user equipment capable of communicating with the communication system; and a network element for storing connection information identifying a connection of the user equipment in the communication system and for determining whether the user equipment is currently connected in the network, wherein responsive to a request from the location server for location information when the user equipment is not currently connected in the network, the network element provides the location server with details of the connection information last stored for the user equipment, the connection information including a service area identity or a cell global identity, and wherein the location server translates the connection information into geographical coordinates.

13. A communication according to claim 12 wherein the location server is provided by a gateway mobile location center.
14. A communication system according to claim 13 wherein the gateway mobile location center is adapted to communicate with a gateway mobile location center of a further communication system.
15. A communication system according to any one of claims 12 to 14 wherein network element is one or all of a radio network controller; a mobile switching center of the communication system; a serving GPRS support node of the communication system; or a serving mobile location center of the communication system.
16. A communication system according to any one of claims 12 to 15 wherein the communication system comprises a cellular telecommunications network.
17. A communication system according to any one of claims 12 to 16 wherein the user equipment comprises a mobile station.

CLAIMS

1. A method in a communication system for providing a location service with geographical location information associated with a user equipment capable of communicating with the communication system, the method comprising the steps of: storing connection information identifying a connection of the user equipment in the communication system; and determining whether the user equipment is currently connected in the network, wherein responsive to the user equipment not currently being connected in the network, the location of the user equipment is determined in dependence on the last stored connection information for the user equipment and wherein the connection information includes a service area identity or a cell global identity, the method further including the step of translating the connection information into geographical coordinates.
2. A method according to claim 1 wherein the location service is provided by a gateway mobile location center.
3. A method according to claim 2 wherein the gateway mobile location center is adapted to communicate with a gateway mobile location center of a further communication system.
4. A method according to any preceding claim wherein the connection information is stored in a control element of the communication system.
5. A method according to claim 4 wherein the connection information is stored in a radio network controller of the communication system.
6. A method according to claim 4 wherein the connection information is stored in a mobile switching center of the communication system.

7. A method according to claim 4 wherein the connection information is stored in a serving GPRS support node of the communication system.
- 5 8. A method according to claim 4 wherein the connection information is stored in a serving mobile location center of the communication system.
- 10 9. A method according to any preceding claim, wherein the step of translating the connection information into geographical coordinates is carried out by a location service.
10. A method according to any preceding claim wherein the communication system comprises a cellular telecommunications network.
- 15 11. A method according to any preceding claim wherein the user equipment comprises a mobile station.
- 20 12. A communication system comprising a location server for providing geographical location information associated with a user equipment capable of communicating with the communication system; and a network element for storing connection information identifying a connection of the user equipment in the communication system and for determining whether the user equipment is currently connected in the network, wherein responsive to a request from the location server for location information when the user equipment is not currently connected in the network, the network element provides the location server with details of the connection information last stored for the user equipment, the connection information including a service area identity or a cell global identity, and
- 25 wherein the location server translates the connection information into geographical coordinates.
- 30

13. A communication according to claim 12 wherein the location server is provided by a gateway mobile location center.
14. A communication system according to claim 13 wherein the gateway mobile location center is adapted to communicate with a gateway mobile location center of a further communication system.
15. A communication system according to any one of claims 12 to 14 wherein network element is one or all of a radio network controller; a mobile switching center of the communication system; a serving GPRS support node of the communication system; or a serving mobile location center of the communication system.
16. A communication system according to any one of claims 12 to 15 wherein the communication system comprises a cellular telecommunications network.
17. A communication system according to any one of claims 12 to 16 wherein the user equipment comprises a mobile station.